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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/692,073	10/19/2000	Coke Reed	F.11146	6301

7590 02/04/2004

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EXAMINER

KADING, JOSHUA A

ART UNIT	PAPER NUMBER
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2661

DATE MAILED: 02/04/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/692,073

Applicant(s)

REED ET AL.

Examiner

Joshua Kading

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 7, 9-12 and 14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore,

5 the "N input ports" of claim 6;

"node E...on a level of the hierarchy directly below the level of the node B" of claim 8;

"I_A", "I_B", "O_H", and "O_D" of claim 10; and

10 "the output Port P" of claim 13 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

15 The drawings are objected to under 37 CFR 1.83(a) because they fail to show

"...A will send MA to a node (not shown) distinct from C, with that node being on level N+1 of the network", page 7, lines 21-22;

"There are output ports [that] can be reached from A that cannot be reached from C", page 8, lines 3-4;

20 "port of M", page 8, line 8;

"one additional node N, not pictured", page 10, line 18;

"node A is capable of routing MA to N", page 10, lines 18-19;

"The logic associated with A is incapable of routing MA to either D or H", page 10, line 21;

"the logic associated with node B is not capable of routing message MB to either node D or node H", page 11, lines 1-2;

5 "A sends MA to a node (not shown) distinct from C that is on the same level as A", page 13, lines 5-6;

"and the remaining message is sent to a node distinct from C (not shown)", page 13, lines 8-9;

"node J (not shown) distinct from H", page 14, lines 1-2;

10 "it uses information from still another control line from a node on level N-1 (not shown) in order to determine where to send its own message", page 14, 7-8;

"the other message is sent to a node distinct from C (not shown)", page 14, lines 19-20;

"to a node on level N+1", page 15, line 3;

15 "A will send MA to a node (not shown) other than C, which node will be on level N+1", page 16, lines 6-7;

"Not pictured in FIG. 8 is a collection R of nodes in column K...", page 16, lines 23-24;

"a node in R (not shown)", page 17, line 1; and

20 "MD", "MU", "MV", "ME", "MW", and "MX" pages 18 and 19 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed

drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

5 The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "x, y, and z" and "CBA, CEB, and CFB" have both been used to designate the control lines between nodes in figure 7. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in
10 abeyance.

 The drawings are objected to because figure 1, there are two levels labeled N+1. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not
15 be held in abeyance.

 The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

20 "MA" on pages 13 and 14 ;

 "MA" and "MB". It is noted that figures 1, 6B, and 6C contain "MA" and "MB" but other figures that reference these messages in the specification do not contain them,

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and it is unclear if these references are referring to the messages of figures 1, 6B, or 6C. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

5

Specification

The disclosure is objected to because of the following informalities:

Page 8, lines 3-4 states, "There are output ports than can be reached..." It should read, --There are output ports that can be reached...--

10

Page 10, line 18 states, "...one additional node N..." It is unclear if this "N" represents the same "N" as is used to describe the level hierarchy as in figures 1, 2, 3, 4, 6A, 7, and 8.

Pages 1 and 20 make reference to several different patent applications but do not supply serial numbers for these applications. The serial numbers are needed.

15

Appropriate correction is required.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

20

Claim 6, lines 2 and 3 mention "N input ports". The specification does not mention these "N input ports".

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Claim 10, lines 2, 3, 5, 7, 8, and 9 mention "I_A", "I_B", "O_H", and "O_D". The specification does not mention these ports.

Claim 13, lines 15 and 16 mention "port P". The specification does not mention this port.

5

Claim Objections

Claims 11 and 14 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 11 states, "message [MB] is not blocked from using output port O_H and message [MA] is not blocked from using output port O_D." Claim 10 states, "there is a path through output port O_D to a target destination for message [MA] and a path through output port O_H to a target destination for message [MB]." By providing a path for messages MA and MB to their respective output ports, the routing logic has provided a non-blocked path for these ports for both messages. Therefore claim 11 fails to further limit claim 10.

Claim 14 states, "message [MB] is not blocked from node H, and message [MA] is not blocked from node D." Claim 13 states, "route MA through node D to a target interconnect structure output port for MA and node C can route MB through node H to a target interconnect structure output port for MB." By routing the messages MA and MB

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through to nodes D and H in claim 13, they have not been blocked en route to nodes D and H. Therefore claim 14 fails to further limit claim 13.

Claims 7, 9, 10, 11, 12, and 14 are objected to because of the following

5 informalities:

Claim 7, line 2 there should be a comma inserted in between "B" and "C", i.e. "...B, C...".

Claim 9, line 9 states, "the control signal B". It should read, --the control signal from node B--.

10 Claim 9, line 11 states "to arrive at concurrently with MG". It should read, --to arrive concurrently with MB--.

Claims 10, 11, 12, and 14 all instances of "M_A" and "M_B" should be changed to "MA" and "MB" respectively.

15 The claims are objected to because they include reference characters which are not enclosed within parentheses.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims.

20 See MPEP § 608.01(m). An example of this appears in claim 5, line 6. It states, "a control signal carrying line CBA..." It should read, "a control signal carrying line (CBA)..."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

5 The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10 Claims 1-4, 6-12, and 13-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

15

 Claim 1, lines 10-11 state "no node exists in the interconnect structure that can have data routed to it from both the node A and the node E". This is not supported in the specification or the drawings. For example, in figure 6A data can be routed to node H from node A through node C; but data can also be routed to node H from node E
20 through node G. This contradicts the limitation in claim 1 as node H clearly can have data routed to it from node A and E.

 Claim 2, lines 6-7 state "no node exists in the interconnect structure that can receive data routed both from node A and the node F". This is also not supported in the

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specification or the drawings. Figure 6A again shows data being routed to node H from node A (through node C) and from node F (through node G).

5 Claim 6, lines 2 and 3-4 disclose "N input ports". The specification and the drawings do not support this limitation.

10 Claim 8, line 6 states "the nodes E, F and H are on a level of the hierarchy directly below the level of the node B." In figures 6A and 7 node E is on the same level, level N, as node B.

10

 Claim 9, line 4 states, "a plurality of interconnected structure output ports..." Neither the specification nor the drawings support this limitation. How are the output ports interconnected? Are they interconnected only within each node or between separate nodes?

15

 Claim 10, lines 2, 5, and 7 disclose the input and output ports "I_A", "I_B", "O_H", and "O_D". There is no mention of these ports in the specification and no representation of them in the drawings.

20

 Claim 10, line 4 states, "a plurality of interconnected structure output ports..." The specification and the drawings do not support this limitation.

Claim 13, line 5 discloses "port P". There is no mention of this port in the specification and no representation of it in the drawings.

Claim Rejections - 35 USC § 102

5 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

10 (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated by Karol (U.S. Patent 5,416,769).

In regard to claim 5, Karol discloses "an interconnect structure comprising:

15 a plurality of nodes including distinct nodes A, B and C, the nodes A and B being both positioned to send data to the node C (figure 3, where element 303 (A) is one distinct node, element 304 (B) is another distinct node, and element 330 (C) is a final distinct node; elements 303 and 304 are clearly positioned to send data to element 330);

20 a plurality of interconnect lines selectively coupling the nodes of the interconnect structure (figure 3 where it is clear the nodes are interconnected by lines);

 a control signal carrying line [(CBA)] connected from the node B to the node A for carrying control signals from the node B to the node A (figure 3, dashed control line coming from control unit 307); and

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a routing logic associated with the node B capable of sending data to the node C and sending a control signal [(z)] to the node A that can inform the node A that the node A is allowed to send a message to the node C (figure 3, where the dashed line is sent from 304 to 303; col. 6, lines 12-24)."

5

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

10 (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15 Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Karol in view of Monacos (U.S. Patent 5,617,413).

In regard to claim 9, Karol discloses "an interconnect structure comprising:

a plurality of nodes including the distinct nodes A, B and C, and a collection of interconnect lines selectively coupling the nodes (figure 3, where element 303 (A) is one
20 distinct node, element 304 (B) is another distinct node, and element 330 (C) is a final distinct node; elements 303 and 304 are clearly positioned to send data to element 330; figure 3 where it is clear the nodes are interconnected by lines);

...the nodes A and C positioned in the structure so that A can route a data packet to C (figure 3);

25 the nodes B and C positioned in the structure so that B can route a data packet to C (figure 3);

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the nodes A and B positioned in the network so that B can send a control signal to A (figure 3, where the control signal is the dashed line coming from control unit 307 passing through 304 to 303);

the logic at node A using the control signal [from node] B to route messages (col.

5 6, lines 12-24);

the node B routing a message MB to C (col. 6, lines 12-24)..."

However, Karol lacks "the node C having a plurality of message input ports, the nodes A and C positioned in the structure so that A can route a data packet to C...the node A routing a message MA to C to arrive concurrently with MB; all input ports of C
10 concurrently receiving a message."

Monacos however, discloses "the node C having a plurality of message input ports, the nodes A and C positioned in the structure so that A can route a data packet to C (figure 6, element node C clearly has a plurality of input ports and is connected to node A in such a way as to allow node A to send a data packet to it)...the node A
15 routing a message MA to C to arrive concurrently with MB (figure 6, where node A and B clearly can both send messages to node at the same time); all input ports of C concurrently receiving a message (figure 6, all input ports of C are independent of one another and capable of receiving a message at the same time)."

It would have been obvious to one with ordinary skill in the art at the time of
20 invention to include the plurality of inputs ports and the concurrently received messages with the rest of the interconnect structure for the purpose of sending multiple messages

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to a node at the same time without them being blocked or colliding. The motivation being an increase in network throughput and efficiency.

Any inquiry concerning this communication or earlier communications from the
5 examiner should be directed to Joshua Kading whose telephone number is (703) 305-0342. The examiner can normally be reached on M-F: 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Olms can be reached on (703) 305-4703. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

10 Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



Joshua Kading
Examiner
Art Unit 2661

15 JK
January 29, 2004



KENNETH VANDERPUYE
PRIMARY EXAMINER